

**Individual Learning Program**

**In**

**AMATEUR RADIO**

**(NOVICE LICENSE)**

OPERATING AIDS

HEALTHY  
COURTESY  
EDUCATION  
L. J. ...

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# **Individual Learning Program**

## **AMATEUR RADIO** (NOVICE LICENSE)

### **OPERATING AIDS** ER-3701

**HEATH COMPANY**  
BENTON HARBOR, MICHIGAN 49022

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## CONTENTS

Common Abbreviations .....	10-4
Twelve Most Common Q Signals .....	10-5
Making Your Own Antenna .....	10-6
International Prefixes .....	10-8
Morse Code Characters .....	10-11
Time Zone Cross-Reference .....	10-12
States Check List .....	10-13
Part 97 (Rules & Regulations)	

## **GENERAL INFORMATION**

The information in this section of your Course is not required to pass the novice test. It is only included as a convenient reference source.

Any wires, insulators, etc., mentioned on the following pages are usually available from local electronics distributors as well as many other sources.

## COMMON ABBREVIATIONS

ABT	About	NR	Number
ADR	Address	OB	Old boy
AGN	Again	OM	Old man (not derogatory to hams)
ANT	Antenna	OP, OPR	Operator
BCI	Broadcast interference	OT	Old timer
BK	Break	PSE	Please
BUG	Semi-automatic telegraph key	PWR	Power
C	Yes, correct	R	Roger
CFM	Confirm	RCVD, RCD	Received
CL	Closing station	RCVR, RX	Receiver
CLD, CLG	Called, calling	RFI	Radio frequency interference
CQ	Calling any station	RIG	Transmitter
CUD	Could	RPT	Repeat
CUL	See you later	RTTY	Radiotelegraph
CW	Continuous wave (telegraph)	SASE	Self-address, stamped envelope
DE	From	SED	Said
DX	Distance, distant	SIG	Signal
ES	And	SKED	Schedule
FB	Fine business (good)	SRI	Sorry
GA	Good afternoon	TNX	Thanks
GB	Good-bye	TVI	Television interference
GE	Good evening	UR, URS	Your, your're, yours
GM	Good morning	VFO	Variable frequency oscillator
GN	Good night	VY	Very
GND	Ground	WAT	What
GUD	Good	WKD, WKG	Worked, working
HI	Telegraphic laughter	WUD	Would
HR	Here	WX	Weather
HV	Have	XMTR, TX	Transmitter
HW	How	XTAL	Crystal
LID	A poor operator	XYL	Ex young lady (wife)
MA, MILS	Milliamperes	YL	Young lady (not married)
MSG	Message	73	Best regards
NIL	Nothing	88	Love and kisses

## TWELVE MOST COMMON Q SIGNALS

NOTE: A Q signal by itself is a statement. A Q signal followed by a question mark is a question.

Q SIGNAL	STATEMENT	QUESTION
QRA	The name of my station is . . . . .	What is the name of your station?
QRM	You are being interfered with . . . . .	Am I being interfered with?
QRN	I am troubled by static.	Are you troubled by static?
QRQ	You are sending too slow.	Am I sending too slow?
QRS	You are sending too fast.	Am I sending too fast?
QRT	I am going to stop sending.	Are you going to stop sending?
QRX	I will call again at . . . . . (time).	When will you call again?
QRZ	You are being called by . . . . .	Who is calling me?
QSB	Your signals are fading.	Are my signals fading?
QSL	I acknowledge receipt.	Can you acknowledge receipt?
QSY	I am changing frequency.	Are you going to change frequency?
QTH	My location is . . . . .	What is your location?

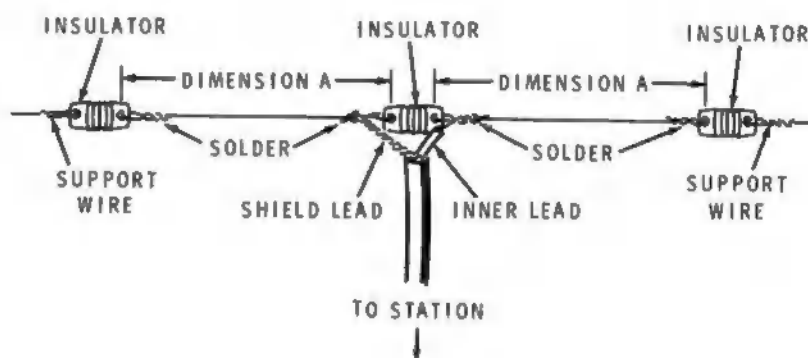
## MAKING YOUR OWN ANTENNA

One of the more common antennas that beginners use is the dipole, or half-wave antenna. The following information will show you how to construct your own dipole antenna. The length of antenna wire that you need depends on the band you make the antenna for. The length of coaxial cable you need depends on your particular installation.

Refer to Figure 10-1 and construct the antenna as shown. Table 1 shows you how long dimension A should be for each novice band. If you are not sure which novice band to use, construct the antenna for the 40-meter band. A 40-meter antenna can be used on both 40 and 15 meters and is the most practical. NOTE: Be sure to measure dimension A as accurately as possible so it will be the correct length **after** you wrap the wire around the insulator and solder it.

**TABLE 1**

NOVICE BAND	DIMENSION A
80 meters (3700-3750 kHz)	62'9"
40 meters (7100-7150 kHz)	32'9"
15 meters (21,100-21,200 kHz)	11'
10 meters (28,100-28,200 kHz)	8'3"



**Figure 10-1**



## **SPECIAL CONSIDERATIONS**

There are a number of things you should consider as you think about an ideal location for your antenna. Antenna location is quite important since it affects the results you will get. Plan its location carefully and consider the following antenna requirements.

1. A dipole antenna works best off its sides and poorest off its ends.
2. The coaxial cable from your antenna must be connected to your station. Also, you should provide a ground lead from a cold water pipe to your station. This means the location of your station in your home will be affected by the antenna location you select and the availability of a cold water pipe or equivalent ground object from which to run a ground wire.
3. Two tall objects are required (buildings, trees, poles, etc.) for hanging the antenna.
4. The antenna should be kept away from power lines, rain gutters, metal buildings, or other large metal objects that might block, shield, or absorb signals (or cause interference).

## INTERNATIONAL PREFIXES

This chart shows how call letter prefixes are assigned throughout the world.

A2A-A2Z	Republic of Botswana	HAA-HAZ	Hungarian People's Republic
A3A-A3Z	Kingdom of Tonga	HBA-HBZ	Switzerland
A4A-A4Z	Oman	HCA-HDZ	Ecuador
A5A-A5Z	Bhutan	HEA-HEZ	Switzerland
A6A-A6Z	United Arab Emirates	HFA-HFZ	People's Republic of Poland
AAA-ALZ	United States of America	HGA-HGZ	Hungarian People's Republic
AMA-AOZ	Spain	HHA-HHZ	Republic of Haiti
APA-ASZ	Pakistan	HIA-HIZ	Dominican Republic
ATA-AWZ	India	HJA-HKZ	Republic of Colombia
AXA-AXZ	Commonwealth of Australia	HLA-HMZ	Korea
AYA-AZZ	Argentine Republic	HNA-HNZ	Iraq
BAA-BZZ	China	HOA-HPZ	Republic of Panama
C2A-C2Z	Republic of Nauru	HQA-HRZ	Republic of Honduras
C3A-C3Z	Principality of Andorra	HSA-HSZ	Thailand
CAA-CEZ	Chile	HTA-HTZ	Nicaragua
CFA-CKZ	Canada	HUA-HUZ	Republic of El Salvador
CLA-CMZ	Cuba	HVA-HVZ	Vatican City State
CNA-CNZ	Morocco	HWA-HYZ	France and French Community
COA-COZ	Cuba	HZA-HZZ	Saudi Arabia
CPA-CPZ	Bolivia	IAA-IZZ	Italy
CQA-CRZ	Portuguese Overseas Provinces	JAA-JSZ	Japan
CSA-CUZ	Portugal	JTA-JVZ	Mongolian People's Republic
CVA-CXZ	Uruguay	JWA-JXZ	Norway
CYA-CZZ	Canada	JYA-JYZ	Jordan
DAA-DTZ	Germany	JZA-JZZ	Western New Guinea
DUA-DZZ	Republic of the Philippines	KAA-KZZ	United States of America
EAA-EHZ	Spain	L2A-L9Z	Argentina
EIA-EJZ	Ireland	LAA-LNZ	Norway
EKA-EKZ	Union of Soviet Socialist Reps.	LOA-LWZ	Argentine Republic
ELA-ELZ	Liberia	LXA-LXZ	Luxembourg
EMA-EOZ	Union of Soviet Socialist Reps.	LYA-LYZ	Lithuania
EPA-EQZ	Iran	LZA-LZZ	People's Republic of Bulgaria
ERA-ERZ	Union of Soviet Socialist Reps.	MAA-MZZ	United Kingdom
ESA-ESZ	Estonia	NAA-NZZ	United States of America
ETA-ETZ	Ethiopia	OAA-OCZ	Peru
EUA-EWZ	Byelorussian Soviet Socialist Rep.	ODA-ODZ	Lebanon
EXA-EZZ	Union of Soviet Socialist Reps.	OEA-OEZ	Austria
FAA-FZZ	France and French Community	OFA-OJZ	Finland
GAA-GZZ	United Kingdom	OKA-OMZ	Czechoslovakia

ONA-OTZ	Belgium	VZA-VZZ	Commonwealth of Australia
OUA-OZZ	Denmark	WAA-WZZ	United States of America
PAA-PIZ	Netherlands	XAA-XIZ	Mexico
PJA-PJZ	Netherlands Antilles	XJA-XOZ	Canada
PKA-POZ	Republic of Indonesia	XPA-XPZ	Denmark
PPA-PYZ	Brazil	XQA-XRZ	Chile
PZA-PZZ	Surinam	XSA-XSZ	China
QAA-QZZ	(Service abbreviations)	XTA-XTZ	Republic of the Upper Volta
RAA-RZZ	Union of Soviet Socialist Reps.	XUA-XUZ	Khmer Republic
S2A-S3Z	Bangladesh	XVA-XVZ	Vietnam
SAA-SMZ	Sweden	XWA-XWZ	Laos
SNA-SRZ	People's Republic of Poland	XXA-XXZ	Portuguese Overseas Provinces
SSA-SSM	United Arab Republic	XYA-XZZ	Burma
SUA-SUZ	Arab Republic of Egypt	YAA-YAZ	Afganistan
SVA-SZZ	Greece	YBA-YHA	Republic of Indonesia
TAA-TCZ	Turkey	YIA-YIZ	Iraq
TDA-TDZ	Guatemala	YJA-YJZ	New Hebrides
TEA-TEZ	Costa Rica	YKA-YKZ	Syria
TFA-TFZ	Iceland	YLA-YLZ	Latvia
TGA-TGZ	Guatemala	YMA-YMZ	Turkey
THA-THZ	France and French Community	YNA-YNZ	Nicaragua
TIA-TIZ	Costa Rica	YOA-YRZ	Romanian People's Republic
TJA-TJZ	Republic of Cameroon	YSA-YSZ	Republic of El Salvador
TKA-TKZ	France and French Community	YTA-YUZ	Yugoslavia
TLA-TLZ	Central African Republic	YVA-YTZ	Venezuela
TMA-TMZ	France and French Community	YZA-YZZ	Yugoslavia
TNA-TNZ	Republic of Congo (Brazzaville)	ZAA-ZAZ	Albania
TOA-TQZ	France and French Community	ZBA-ZJZ	British Overseas Territories
TRA-TRZ	Republic of Gabon	ZKA-ZMZ	New Zealand
TSA-TSZ	Tunisia	ZNA-ZOZ	British Overseas Territories
TTA-TTZ	Republic of Chad	ZPA-ZPZ	Paraguay
TUA-TUZ	Republic of the Ivory Coast	ZQA-ZQZ	British Overseas Territories
TVA-TXZ	France and French Community	ZRA-ZUZ	Republic of South Africa
TYA-TYZ	Republic of Dahomey	ZVA-ZZZ	Brazil
TZA-TZZ	Republic of Mali	2AA-2ZZ	Great Britain
UAA-UQZ	Union of Soviet Socialist Reps.	3AA-3AZ	Monaco
URA-UTZ	Ukrainian Soviet Socialist Rep.	3BA-3BZ	Mauritius
UUA-UZZ	Union of Soviet Socialist Reps.	3CA-3CZ	Equatorial Guinea
VAA-VGZ	Canada	3DA-3DM	Swaziland
VHA-VNZ	Commonwealth of Australia	3DN-3DZ	Fiji
VOA-VOZ	Canada	3DN-3FZ	Panama
VPA-VSZ	British Overseas Territories	3GA-3GZ	Chile
VTA-VWZ	India	3HA-3UZ	China
VXA-VYZ	Canada	3VA-3VZ	Tunisia

3WA-3WZ	Vietnam	6VA-6WZ	Republic of the Senegal
3XA-3XZ	Guinea	6XA-6XZ	Malagasy Republic
3YA-3YZ	Norway	6YA-6YZ	Jamaica
3ZA-3ZZ	People's Republic of Poland	6ZA-6ZZ	Liberia
4AA-4CZ	Mexico	7AA-7IZ	Indonesia
4DA-4IZ	Republic of the Philippines	7JA-7NZ	Japan
4JA-4LZ	Union of Soviet Socialist Reps.	7OA-7OZ	South Yemen Popular Republic
4MA-4MZ	Venezuela	7PA-7PZ	Lesotho
4NA-4OZ	Yugoslavia	7QA-7QZ	Malawi
4PA-4SZ	Ceylon	7RA-7RZ	Algeria
4UA-4UZ	United Nations	7SA-7SZ	Sweden
4VA-4VZ	Republic of Haiti	7TA-7YZ	Algeria
4WA-4WZ	Yemen	7ZA-7ZZ	Saudi Arabia
4XA-4XZ	State of Israel	8AA-8IZ	Indonesia
4YA-4YZ	International Civil Aviation Org.	8JA-8NZ	Japan
4ZA-4ZZ	State of Israel	8OA-8OZ	Botswana
5AA-5AZ	Libya	8PA-8PZ	Barbados
5BA-5BZ	Republic of Cyprus	8QA-8QZ	Maldiv Islands
5CA-5GZ	Morocco	8RA-8RZ	Guyana
5HA-5IZ	Tanzania	8SA-8SZ	Sweden
5JA-5KZ	Colombia	8TA-8YZ	India
5LA-5MZ	Liberia	8ZA-8ZZ	Saudi Arabia
5NA-5OZ	Nigeria	9AA-9AZ	San Marino
5PA-5QZ	Denmark	9BA-9DZ	Iran
5RA-5SZ	Malagasy Republic	9EA-9FZ	Ethiopia
5TA-5TZ	Islamic Republic of Mauritania	9GA-9GZ	Ghana
5UA-5UZ	Republic of the Niger	9HA-9HZ	Malta
5VA-5VZ	Togolese Republic	9IA-9JZ	Zambia
5WA-5WZ	Western Samoa	9KA-9KZ	Kuwait
5YA-5ZZ	Uganda	9LA-9LZ	Sierra Leone
5XA-5XZ	Kenya	9MA-9MZ	Malaysia
6AA-6BZ	Arab Republic of Egypt	9NA-9NZ	Nepal
6CA-6CZ	Syria	9OA-9TZ	Republic of Zaire
6DA-6JZ	Mexico	9UA-9UZ	Burundi
6KA-6NZ	Korea	9VA-9VZ	Singapore
6OA-6OZ	Somalia	9WA-9WZ	Malaysia
6PA-6SZ	Pakistan	9XA-9XZ	Rwanda
6TA-6UZ	Sudan	9YA-9ZZ	Trinidad and Tobago

## MORSE CODE CHARACTERS

A Di-dah  
 B Dah-di-di-dit  
 C Dah-di-dah-dit  
 D Dah-di-dit  
 E Dit  
 F Di-di-dah-dit  
 G Dah-dah-dit  
 H Di-di-di-dit  
 I Di-dit  
 J Di-dah-dah-dah  
 K Dah-di-dah  
 L Di-dah-di-dit  
 M Dah-dah  
 N Dah-dit  
 O Dah-dah-dah  
 P Di-dah-dah-dit  
 Q Dah-dah-di-dah  
 R Di-dah-dit  
 S Di-di-dit  
 T Dah  
 U Di-di-dah  
 V Di-di-di-dah  
 W Di-dah-dah  
 X Dah-di-di-dah  
 Y Dah-di-dah-dah  
 Z Dah-dah-di-dit

1 Di-dah-dah-dah-dah  
 2 Di-di-dah-dah-dah  
 3 Di-di-di-dah-dah  
 4 Di-di-di-di-dah  
 5 Di-di-di-di-dit  
 6 Dah-di-di-di-dit  
 7 Dah-dah-di-di-dit  
 8 Dah-dah-dah-di-dit  
 9 Dah-dah-dah-dah-dit  
 0 Dah-dah-dah-dah-dah

Period	Di-dah-di-dah-di-dah
Comma	Dah-dah-di-di-dah-dah
Question Mark	Di-di-dah-dah-di-dit
Fraction bar	Dah-di-di-dah-dit
Parenthesis	Dah-di-dah-dah-di-dah
Quotation marks	Di-dah-di-di-dah-dit
Colon	Dah-dah-dah-di-di-dit
Semicolon	Dah-di-dah-di-dah-dit
Hyphen	Dah-di-di-di-di-dah
Dollar Sign	Di-di-di-dah-di-di-dah

Wait ( $\overline{AS}$ )	Di-dah-di-di-dit
Break ( $\overline{BT}$ )	Dah-di-di-di-dah
End of Message ( $\overline{AR}$ )	Di-dah-di-dah-dit
End of Transmission ( $\overline{VA}$ )	Di-di-di-dah-di-dah
Received okay (R)	Di-dah-dit
Invitation to Transmit (K)	Dah-di-dah

**TIME ZONE CROSS REFERENCE**

UTC (Universal Coordinated Time)	EST (Eastern Standard Time)	CST (Central Standard Time)	MST (Mountain Standard Time)	PST (Pacific Standard Time)
0000	1900	1800	1700	1600
0100	2000	1900	1800	1700
0200	2100	2000	1900	1800
0300	2200	2100	2000	1900
0400	2300	2200	2100	2000
0500	0000	2300	2200	2100
0600	0100	0000	2300	2200
0700	0200	0100	0000	2300
0800	0300	0200	0100	0000
0900	0400	0300	0200	0100
1000	0500	0400	0300	0200
1100	0600	0500	0400	0300
1200	0700	0600	0500	0400
1300	0800	0700	0600	0500
1400	0900	0800	0700	0600
1500	1000	0900	0800	0700
1600	1100	1000	0900	0800
1700	1200	1100	1000	0900
1800	1300	1200	1100	1000
1900	1400	1300	1200	1100
2000	1500	1400	1300	1200
2100	1600	1500	1400	1300
2200	1700	1600	1500	1400
2300	1800	1700	1600	1500

## WORKED ALL STATES CHECK LIST

This check list allows you to keep a record of the  
states worked (W) and confirmed (C).

### FIRST CALL AREA

	W	C
Connecticut	<input type="checkbox"/>	<input type="checkbox"/>
Maine	<input type="checkbox"/>	<input type="checkbox"/>
Massachusetts	<input type="checkbox"/>	<input type="checkbox"/>
New Hampshire	<input type="checkbox"/>	<input type="checkbox"/>
Rhode Island	<input type="checkbox"/>	<input type="checkbox"/>
Vermont	<input type="checkbox"/>	<input type="checkbox"/>

### FIFTH CALL AREA

	W	C
Arkansas	<input type="checkbox"/>	<input type="checkbox"/>
Louisiana	<input type="checkbox"/>	<input type="checkbox"/>
Mississippi	<input type="checkbox"/>	<input type="checkbox"/>
New Mexico	<input type="checkbox"/>	<input type="checkbox"/>
Oklahoma	<input type="checkbox"/>	<input type="checkbox"/>
Texas	<input type="checkbox"/>	<input type="checkbox"/>

### NINTH CALL AREA

	W	C
Illinois	<input type="checkbox"/>	<input type="checkbox"/>
Indiana	<input type="checkbox"/>	<input type="checkbox"/>
Wisconsin	<input type="checkbox"/>	<input type="checkbox"/>

### SECOND CALL AREA

	W	C
New Jersey	<input type="checkbox"/>	<input type="checkbox"/>
New York	<input type="checkbox"/>	<input type="checkbox"/>

### SIXTH CALL AREA

	W	C
California	<input type="checkbox"/>	<input type="checkbox"/>

	W	C
Colorado	<input type="checkbox"/>	<input type="checkbox"/>
Iowa	<input type="checkbox"/>	<input type="checkbox"/>
Kansas	<input type="checkbox"/>	<input type="checkbox"/>
Minnesota	<input type="checkbox"/>	<input type="checkbox"/>
Missouri	<input type="checkbox"/>	<input type="checkbox"/>
Nebraska	<input type="checkbox"/>	<input type="checkbox"/>
North Dakota	<input type="checkbox"/>	<input type="checkbox"/>
South Dakota	<input type="checkbox"/>	<input type="checkbox"/>

### THIRD CALL AREA

	W	C
Delaware	<input type="checkbox"/>	<input type="checkbox"/>
Maryland — D.C.	<input type="checkbox"/>	<input type="checkbox"/>
Pennsylvania	<input type="checkbox"/>	<input type="checkbox"/>

### SEVENTH CALL AREA

	W	C
Arizona	<input type="checkbox"/>	<input type="checkbox"/>
Idaho	<input type="checkbox"/>	<input type="checkbox"/>
Montana	<input type="checkbox"/>	<input type="checkbox"/>
Nevada	<input type="checkbox"/>	<input type="checkbox"/>
Oregon	<input type="checkbox"/>	<input type="checkbox"/>
Utah	<input type="checkbox"/>	<input type="checkbox"/>
Washington	<input type="checkbox"/>	<input type="checkbox"/>
Wyoming	<input type="checkbox"/>	<input type="checkbox"/>

### OTHER

	W	C
Alaska	<input type="checkbox"/>	<input type="checkbox"/>
Hawaii	<input type="checkbox"/>	<input type="checkbox"/>

### FOURTH CALL AREA

	W	C
Alabama	<input type="checkbox"/>	<input type="checkbox"/>
Florida	<input type="checkbox"/>	<input type="checkbox"/>
Georgia	<input type="checkbox"/>	<input type="checkbox"/>
Kentucky	<input type="checkbox"/>	<input type="checkbox"/>
North Carolina	<input type="checkbox"/>	<input type="checkbox"/>
South Carolina	<input type="checkbox"/>	<input type="checkbox"/>
Tennessee	<input type="checkbox"/>	<input type="checkbox"/>
Virginia	<input type="checkbox"/>	<input type="checkbox"/>

### EIGHTH CALL AREA

	W	C
Michigan	<input type="checkbox"/>	<input type="checkbox"/>
Ohio	<input type="checkbox"/>	<input type="checkbox"/>
West Virginia	<input type="checkbox"/>	<input type="checkbox"/>